

### **REMARKS**

Claims 18-46 remain pending in the present application. Claims 18-46 have been amended. Basis for the amendments can be found throughout the specification, claims and drawings as originally filed.

### **REJECTION UNDER 35 U.S.C. § 112**

Claims 19-25, 29, 32, 34, 39-42 and 44-46 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The claims have been amended to overcome the rejection. Reconsideration of the rejection is respectfully requested.

### **REJECTION UNDER 35 U.S.C. § 102**

Claims 30, 31 and 34 are rejected under 35 U.S.C. § 102(b) as being anticipated by Applicant's Admitted Prior Art (AAPA). Applicants respectfully traverse this rejection.

Claim 30 has been amended to contain the feature of "each manufacturing lot contains one or more workpieces", the feature of "the workpieces of each manufacturing lot requires one or more in-process work steps", the feature of "the in-process work steps required for the workpieces of each manufacturing lot differing from those required for the workpieces of each manufacturing lots", the feature of "a plurality of processing apparatuses, executing specific in-process work steps are provided", the feature of "the workpieces of each manufacturing lot are initially loaded on one or more carriers", the feature of "when the execution of the specific in-process work step in each

of the processing apparatuses is intended to execute the specific in-process work steps in the respective processing apparatuses, a plurality of specific manufacturing lots containing the workpieces, which require the specific in-process work step of the processing apparatus, are selected from the manufacturing lots”, the feature of “the workpieces of the specific manufacturing lots loaded on the corresponding carriers are mix-loaded on a specific carrier each time the specific manufacturing lots are selected”, and the feature of “the specific carrier having the workpieces of the specific manufacturing lots requiring the specific in-process work step of the processing apparatuses is transported to the processing apparatus to execute the specific in-process work step for the workpieces of the specific manufacturing lots”.

We believe that the amendment of Claim 30 is supported by illustrations of Fig. 12 and the corresponding descriptions of the present specification.

The present invention defined in the amended Claim 30 teaches a manufacturing managing method wherein workpieces of a plurality of manufacturing lots are managed to mix-load workpieces of a plurality of manufacturing lots on a carrier and transport the carrier having the workpieces requiring an in-process work step to be executed in one of a plurality of processing apparatuses to the processing apparatus. More particularly, in-process work steps required for workpieces of each manufacturing lot differ from those required for workpieces of the other manufacturing lots, and each of processing apparatuses executes its specific in-process work step. When the execution of the specific in-process work step in each of the processing apparatuses is intended to execute the specific in-process work steps in the processing apparatuses, a plurality of specific manufacturing lots are selected from the manufacturing lots. The specific

manufacturing lots contain the workpieces requiring the specific in-process work step of the processing apparatus. Then, each time the specific manufacturing lots are selected, the workpieces of the specific manufacturing lots already loaded on the corresponding carriers are mix-loaded on a specific carrier, and the specific carrier is transported to the processing apparatus to execute the specific in-process work step required for the workpieces of the specific manufacturing lots in the processing apparatus. Accordingly, all in-process work steps required by the workpieces of each manufacturing lot can be executed in the corresponding processing apparatuses.

Applicants' Admitted Prior Art does not teach the mix-loading of workpieces of a plurality of manufacturing lots on a carrier.

Thus, Applicants believe Claim 30, as amended, patentably distinguish over the art of record. Likewise, Claims 31 and 34, which ultimately depend from Claim 30, are also believed to patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

Claims 18-24, 30, 31, 33 and 35-41 are rejected under 35 U.S.C. § 102(b) as being anticipated by Akimoto (U.S. Pat. No. 5,980,591). Applicants respectfully traverse this rejection.

Claim 18 has been amended to contain the feature of "each manufacturing lot contains one or more workpieces", the feature of "the workpieces of each manufacturing lot requires one or more in-process work steps executed at respective predetermined work conditions", the feature of "the in-process work steps or the work conditions for the group of workpieces of each manufacturing lot differ from those for the workpieces of the other manufacturing lots", the feature of "each workpiece of the specific

manufacturing lots requires a specific in-process work step”, the feature of “a work condition of the specific in-process work step for the workpieces of one specific manufacturing lot differs from that or those of the specific in-process work step for the workpieces of the other specific manufacturing lots”, the feature of “the workpieces of each manufacturing lot are initially loaded on one or more carriers”, the feature of “all or a part of workpieces of the specific manufacturing lots loaded on the corresponding carriers are mix-loaded on one specific carrier just before transporting the workpieces of the specific manufacturing lots to a processing apparatus that is capable of simultaneously bringing a plurality of workpieces into the specific in-process work step of different work conditions”, and the feature of “the specific carrier is transported to the processing apparatus to process the workpieces of the specific manufacturing lots mix-loaded on the specific carrier in the specific in-process work step of a current manufacturing process flow at different work conditions”.

We believe that the amendment of Claim 18 is supported by illustrations of Fig. 7 and the corresponding descriptions of the present specification.

The present invention defined in the amended Claim 18 teaches a manufacturing managing method wherein workpieces of a plurality of manufacturing lots are managed to mix-load workpieces of a plurality of manufacturing lots on a carrier and to transport the carrier to a processing apparatus. More particularly, the workpieces of each manufacturing lot are initially loaded on one or more carriers, and all or a part of workpieces of specific manufacturing lots loaded on the corresponding carriers are mix-loaded on a specific carrier. Each workpiece of the specific manufacturing lots requires a specific in-process work step. Thereafter, the specific carrier is transported to a

processing apparatus, and the workpieces of the specific manufacturing lots mix-loaded on the specific carrier are processed in the specific in-process work step of a current manufacturing process flow at different work conditions.

Akimoto does not teach that wafers of specific manufacturing lots already loaded on corresponding cassettes are unloaded from the cassettes and are mix-loaded on a specific cassette to process the wafers of the specific manufacturing lots in a specific in-process work step at different work conditions in a processing apparatus.

Thus, Applicants believe that Claim 18, as amended, patentably distinguishes over the art of record. Likewise, Claims 19-24, which ultimately depend from Claim 18, are also believed to patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

Regarding Claim 30, the discussion above applies here also. Akimoto teaches a system for processing objects contained in cassettes. More particularly, a cassette C3 contains wafers to be processed under condition C and wafers to be processed under condition B (see column 32, lines 17-20), and the wafers of the cassette C3 are conveyed and processed. However, Akimoto does not teach that a plurality of specific manufacturing lots of wafers requiring a specific in-process work step of each of a plurality of processing apparatuses are selected from manufacturing lots, and the wafers of the specific manufacturing lots already loaded on corresponding cassettes are mix-loaded on a specific cassette. Thus, Applicants believe Claim 30, as amended, patentably distinguishes over the art of record. Likewise, Claims 31 and 33, which ultimately depend from Claim 30, are also believed to patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

Claim 35 has been amended to contain the feature of “each manufacturing lot contains one or more workpieces”, the feature of “the workpieces of each manufacturing lot requires one or more in-process work steps executed at respective work conditions”, the feature of “the in-process work steps or work conditions for each workpiece of each manufacturing lot differ from those for each workpiece of the other manufacturing lots”, the feature of “the workpieces of the similar manufacturing lots require at least one of the work steps executed at the same work condition”, the feature of “the workpieces of the similar manufacturing lots require a specific in-process work step executed at the same work condition”, the feature of “the workpieces of each manufacturing lot are initially loaded on one or more carriers”, the feature of “all or a part of workpieces of the similar manufacturing lots loaded on the corresponding carriers are mix-loaded on a specific carrier just before transporting the workpieces of the similar manufacturing lots to a processing apparatus that is capable of processing a plurality of workpieces in the specific in-process work step at the same work condition”, and the feature of “the specific carrier is transported to the processing apparatus to process the workpieces of the similar manufacturing lots in the specific in-process work step of a current manufacturing process flow at the same work condition”.

We believe that the amendment of Claim 35 is supported by illustrations of Fig. 5 and the corresponding descriptions of the present specification.

The present invention defined in the amended Claim 35 teaches a manufacturing managing method wherein workpieces of a plurality of manufacturing lots are managed to mix-load workpieces of a plurality of manufacturing lots on a carrier and to transport the carrier to a processing apparatus. More particularly, the workpieces of each

manufacturing lot are initially loaded on one or more carriers, and all or a part of workpieces of similar manufacturing lots loaded on the corresponding carriers are mix-loaded on a specific carrier. The workpieces of the similar manufacturing lots require a specific in-process work step at the same work condition. Thereafter, the specific carrier is transported to a processing apparatus, and the workpieces of the similar manufacturing lots are processed in the specific in-process work step of a current manufacturing process flow at the same work condition.

Akimoto does not teach that wafers of similar manufacturing lots already loaded on corresponding cassettes are unloaded from the cassettes and are mix-loaded on a specific cassette to process the wafers of the similar manufacturing lots in a specific in-process work step at the same work condition in a processing apparatus.

Thus, Applicants believe the Claim 35, as amended, patentably distinguishes over the art of record. Likewise, Claims 36-41, which ultimately depend from Claim 35, are also believed to patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

Claims 18, 19, 21, 24, 26-29, 30-32, 36, 38, 41, 42 and 44-46 are rejected under 35 U.S.C. § 102(b) as being anticipated by Conboy (U.S. Pat. No. 6,449,522). Applicants respectfully traverse this rejection.

The discussion above relating to Claim 18 applies here also. Conboy does not teach that wafers of specific lots already loaded on corresponding cassettes are unloaded from the cassettes and are mix-loaded on a specific cassette to process the wafers of the specific lots in a specific in-process work step at different work conditions in a processing apparatus. Thus, Applicants believe Claim 18, as amended, patentably

distinguishes over the art of record. Likewise, Claims 19, 21, 24 and 26-29, which ultimately depend from Claim 18, are also believed to patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

The discussion above regarding Claim 30 applies here also. Conboy teaches management of automated material handling systems. More particularly, a number of different fabrication tools are provided for fabricating wafers. The facility includes a number of wafers and a number of cassettes for storing wafers processed in the facility. During processing, the wafers are divided into lots or groupings of one or more wafers. A cassette is used to store one or more lots (see column 3, lines 1-9).

However, Conboy does not teach that a plurality of specific lots of wafers requiring a specific in-process work step of each of a plurality of processing apparatuses are selected from lots, and the wafers of the specific lots already loaded on corresponding carriers are mix-loaded on a specific carrier. Thus, Applicants believe Claim 30, as amended, patentably distinguishes over the art of record. Likewise, Claims 31 and 32, which ultimately depend from Claim 1, are also believed to patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

The discussion above regarding Claim 35 applies here also. While Claim 35 was not part of this rejection, Applicants are including this discussion because some of Claim 35's dependent claims were a part of this rejection. Conboy does not teach that wafers of similar lots already loaded on corresponding cassettes are unloaded from the cassettes and are mix-loaded on a specific cassette to process the wafers of the similar lots in a specific in-process work step at the same work condition in a processing



apparatus. Thus, Applicants believe Claim 35, as amended, patentably distinguishes over the art of record. Likewise, Claims 36, 38, 41, 42 and 44-46, which ultimately depend from Claim 35, are also believed to patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

#### **REJECTION UNDER 35 U.S.C. § 103**

Claims 43 and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Akimoto (U.S. Pat. No. 5,980,591) or Conboy (U.S. Pat. No. 6,449,522) as applied to Claim 35 above, and further in view of Jones (U.S. Pat. No. 5,856,923). Applicants respectfully traverse this rejection. Claims 43 and 25 ultimately depend from Claims 35 and 18, respectively. Claims 35 and 18 have been amended and are now believed to patentably distinguish over the art of record. Thus, Claims 43 and 25 are also believed to patentably distinguish over the art of record. Reconsideration of the rejection is respectfully requested.

#### **CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the

Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: August 25, 2005

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